REMARKS

Applicants' Response to the Examiner's Rejections Under 35 U.S.C. §102 and §103(a)

Claims 1-3, 5-12, 16-18 and 21 are pending in the current application. Claims 4 and 13-15 have been withdrawn and claim 19-20 have been deleted. Claims 1, 10, 12 and 21 are currently amended.

The rejection of claim 1 has been maintained under 35 U.S.C. §102(b) as being anticipated by ***Ando et al. '168***, as well as the rejection of claims 3, 5, 6 and 8, under 35 U.S.C. §102(b) as being anticipated by, or under 35 U.S.C. §103(a) as obvious over ***Ando '168***.

The rejection of claim 2 has also been maintained under 35 U.S.C. §102(b) as being anticipated by ***Ando '168***, or under 35 U.S.C. §103(a) as obvious over ***Ando '168*** in view of ***JP '898***, and the rejection of claims 3, 5-7, 9-12, and 16-18 under 35 U.S.C. §103(a) as being obvious over ***Ando '168*** in view of ***JP '868***, or, alternatively, ***Ando/JP '868***, and further in view of Applicants' Prior Art admissions.

The Office Action of August 28, 2003 states that Applicant's previous arguments as to claims 1 and 12 (regarding the lowest-energy-level channel being provided next to the electron-supply layer and therefore producing a larger mutual conductance) were not persuasive because this was not a limitation included in the claims. Applicants have amended claims 1, 10, 12 and 21 to include the limitation that the electron-supply layer, 6 is laminated in contact with the first channel layer, 4. Support for this amendment is located at pages 11 and 12 of the current application, as well as in Figure 1.

As stated in Applicants' Response of July 14, 2003, when the first channel layer having the lowest energy level is provided next to the electron-supply layer in a high electron mobility transistor, HEMT, the distance between the gate electrode and the channel region with carriers is closer and the mutual conductance gm is larger. Hence, the channel region with carriers is required to be closer to the electron supplying layer on which the gate electrode is formed. However, Ando '168 discloses that the channel layer having the lowest energy level is ***not*** closely provided to the electron supplying layer. This means that in Ando the channel region with carriers is farther apart from the gate electrode formed on the electron supply layer; and therefore, the mutual conductance gm cannot be as large as is required in the present invention.

Ando also fails to render the embodiment of the present invention obvious. One skilled in the art would not look to Ando as providing a teaching or suggestion which would enable a readily producible product. In regard to the current invention, Ando merely mentions that an InP/InGaAs compound system is a substitutable system. Col. 23, lines 57-66. There is no teaching or suggestion that this substitute would be readily usable to manufacture the HEMT of the present invention.

In regard to the admitted prior art in the specification, the embodiment shown in Figures 5 and 6 was not readily producible because of the required extra etching step:

> However, in the HEMT structure shown in FIG.S 5 and 6, a separation groove from the cap layer 108 to the buffer layer 102 has to be formed for the purpose of isolation. The formation of the separation groove is usually conducted by wet etching. In this case, if the $In_{1-x}Ga_xAs_{1-y}P_y$ layer is used as the channel layer shown in FIG. 6, a wet etching process has to be used which is different from that employed for the other layers using only As as the Group V semiconductor. Generally, the compound semiconductor layer using P as the Group V semiconductor requires a wet etching process different from a wet etching process required for the compound semiconductor layer containing no P. Therefore, the element separation process employed in the fabrication of the conventional HEMT structure shown in FIG. 6 was complicated and unsuitable for actual mass production. (Specification, Page 5, lines 7-22.)

The present invention would not be obvious because there is no teaching or suggestion to combine the Ando reference with the admitted prior art to derive the current invention. Ando discloses in substance an embodiment in which the channel layer having the lowest energy level is not closely provided to the electron supplying layer, the admitted prior art demonstrates an embodiment which utilizes P in the channel layer and is not commercially viable. One skilled in the art would therefore not derive the current invention on the mere fact that Ando mentions in passing a substitute InP/InGaAs compound system with no discussion, teaching or suggestion how to utilize such a system in the Ando embodiment; let alone, an embodiment mentioned in other art.

As stated above, all independent claims have been amended in response to the rejections, wherefore, it is respectfully submitted that all pending claims are allowable in light of the current amendments.

For at least the foregoing reasons, it is believed that this application is now in condition for allowance. If, for any reason, it is believed that this application is not in condition for allowance, Examiner is encouraged to contact the Applicants' undersigned attorney at the telephone number below to expedite the disposition of this case.

In the event that this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 50-2866.

Respectfully submitted,

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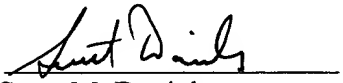
By: 

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